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ABSTRACT

This study provides migration trends for black and nonblack students who scored highest on the National Merit Scholarship Qualifying Test (NMSQT). The nonblack sample of 51,096 consisted of all those who had obtained an NMSQT score of 137 or above -- about 2 percent of all 11th graders obtain scores this high. The black sample of 8,162 included all who had obtained an NMSQT selection score of 90 or higher. Twelve geographical areas were used in studying the migration trends for nonblacks, while six were identified for Blacks. Migration was analyzed on the basis of place of birth versus place of testing. Migration trends were identified separately for students attending schools judged to be serving above average, average, or below average socioeconomic areas. (Author/AF)

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NATIONAL MERIT SCHOLARSHIP CORPORATION

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The National Merit Scholarship Corporation was founded in 1955 for the purpose of annually identifying and honoring the nation's most talented youth. Merit Scholarships, which are awarded on a competitive basis, provide financial assistance that Scholars use to attend the colleges of their choice.

The NMSC research program was established in 1957 to conduct scholarly research related to the source, identification and development of intellectual talent. NMSC Research Reports are one means of communicating the research program's results to interested individuals.

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ABSTRACT

This study provides migration trends for black and nonblack students who scored highest on a test of academic ability in competition for scholarships awarded by the National Merit Scholarship Corporation. The nonblack sample of 51,096 consisted of all those who obtained an NMSQT selection score of 137 or above--about 2% of all 11th graders obtain scores this high. The black sample of 8,162 included all who obtained an NMSQT selection score of 90 or higher. Twelve geographical areas were used in studying the migration trends for nonblacks, while six were identified for the blacks. Migration was analyzed on the basis of place of birth versus place of testing. Migration trends were identified separately for students attending schools judged to be serving above average, average, or below average socioeconomic areas.

BRAIN GAINS AND BRAIN DRAINS: THE MIGRATION OF BLACK AND NONBLACK TALENT

Donivan J. Watley

Each year thousands of families move. Some move to the next block or across town while others move out of the state or even out of the country. At the international level, the idea of "brain drain" emerged several years ago because of the nation's concern over its gains and losses of talent. In 1967 the National Science Foundation conducted a study of "Scientists and engineers from abroad, 1962-64" which revealed that 16,000 moved permanently to the U. S. during that period. Data were reported by country of origin and by discipline. In 1968 Congress investigated the inflow of talent into this country because of concern over the drain of scientific "brains" from the developing countries. The House Committee on Government Operations (1968) reported that the number of scientists, engineers, and physicians migrating to the U. S. from all foreign countries almost tripled from 1956 to 1967.

Gains and losses of brainpower is not only an international problem but is a concern at the regional, state, and local levels as well. The high rate of geographic mobility appears to be done so clearly at the expense of some areas where a substantial proportion of the top talent is being drained off. During 1960-66, for example, the colleges in Illinois, Indiana, Michigan, Ohio, and Wisconsin awarded doctorates to over 23,000 people who got their first post-doctoral jobs in this time period. Only about 8,000 of them were employed in this five-state region, and only about 5,000 others were recruited from states outside this region to accept first post-doctoral employment (National Academy of Sciences, 1967). This represents a substantial net loss to the region offering the doctoral education. State-supported institutions are particularly concerned about where their graduates find employment. Moreover, rural areas within states are disturbed over the loss of talent to the big cities, while the inner cities are concerned about the movement of affluent, talented, and educated families to the suburbs.

Although the Bureau of the Census reports data on migration trends in this country, detailed information on the state and regional brain gains or losses among high ability students is sparse. The purpose of this report is to indicate some of the migration trends that have occurred among the nation's most academically talented youth identified by a test of academic ability.

METHOD

SAMPLES

Since 1955 the National Merit Scholarship Corporation has conducted the nation's largest private scholarship program. Approximately 750,000 students from about 17,500 high schools voluntarily participate in this annual nationwide scholarship competition. About 35,000 are blacks who compete not only for Merit awards but also for awards in the National Achievement Scholarship Program for outstanding Negro students. The high schools in which the National Merit Scholarship Qualifying Test (NMSQT) is given enroll about 95% of all eleventh graders in this country. Altogether, about 28% of all 11th graders take the NMSQT. The participating high schools report, however, that virtually all of their high ability students take the NMSQT (Nichols, 1969).

The samples of blacks and nonblacks used in this study were chosen from among the students who took the NMSQT in the spring of 1966. The nonblack sample of 51,096 consisted of all those who obtained an NMSQT selection score of 137 or above. Based on a national representative sample, about 2% of all 11th graders obtain scores this high. The black sample of 8,162 included all those getting NMSQT selection scores of 90 or higher. Approximately one-quarter of the blacks had scores that high. Since many more nonblacks than blacks take the NMSQT, it was necessary to use a larger proportion of the blacks in order to have a sufficient number available to obtain reasonably stable migration figures. In general, blacks do not get NMSQT scores as high as the nonblacks do.

Students were not asked to indicate their race when they took the NMSQT. Blacks were identified by their having marked on the NMSQT answer sheet that they wanted to be considered for Achievement scholarships for outstanding Negroes.

MIGRATION DATA

In addition to other biographical data, the state of birth was obtained from each student when he took the NMSQT. Migration was determined by cross-tabulating state or region of birth with the state or region in which a student was tested. Students are tested where they attend secondary school. From birth to time of testing covered a period of approximately sixteen years.

A total of 12 geographical areas were used in studying the migration trends for nonblacks. Any state that had 2,400 or more students with NMSQT selection scores of 137 or higher born within its borders was considered to have a sufficiently large number to provide reasonably stable trends. Five states met this requirement. New York (N=8,870) was followed by Illinois (3,896), Pennsylvania (3,640), California (3,608), and Ohio (2,986) in the number giving birth to high

test scorers. Because of its geographic location, however, Hawaii's 188 high scorers were added to those of California to form a single group. The other seven regions were formed on the bases of states which seemed intuitively to belong together. Consideration was also given to the number of high scorers in the various states and to the desire to have enough states and regions to make the analysis meaningful while having a small enough number to be interpretively manageable. At least 2,400 "brains" were born in each region. The 12 states and regions are listed in Figure 1.

Region 1 West	Region 2 Illinois	Region 3 New York	Region 4 Pennsylvania
California Hawaii	Illinois	New York	Pennsylvania

Region 5 Ohio	Region 6 Northwest	Region 7 Southwest	Region 8 Plains
Ohio	Alaska Colorado Idaho Montana Nevada Oregon Utah Washington Wyoming	Arizona New Mexico Oklahoma Texas	Iowa Kansas Minnesota Missouri Nebraska North Dakota South Dakota

Region 9 North Central	Region 10 Southeast	Region 11 Mid-Atlantic	Region 12 Northeast
Indiana Michigan Wisconsin	Alabama Arkansas Florida Georgia Kentucky Louisiana Mississippi North Carolina South Carolina Tennessee Virginia West Virginia	Delaware District of Columbia Maryland New Jersey	Connecticut Maine Massachusetts New Hampshire Rhode Island Vermont

Fig. 1 States and regions for the nonblack "brains."

One question concerns the stability of the number of high scorers for the various states from year to year. To access this question the number of high scorers in each state was divided by the total number of high scorers in all states for each of the years 1961, 1962, 1963, 1964, and 1965. The data for the different years were then intercorrelated. All of the correlations were above .99, indicating that the number of high scorers by state is quite stable.

Six regions were used for blacks because of the smaller number of Negroes involved. These are listed in Figure 2. There was a particular problem in finding sufficient numbers of high scoring blacks who were born in the Plains and New England states.

Region 1 West	Region 2 Plains	Region 3 Great Lakes
Alaska	Iowa	Illinois
Arizona	Kansas	Indiana
California	Minnesota	Michigan
Colorado	Missouri	Ohio
Hawaii	Nebraska	Wisconsin
Idaho	North Dakota	
Montana	South Dakota	
Nevada		
New Mexico		
Oklahoma		
Oregon		
Texas		
Utah		
Washington		
Wyoming		

Region 4 Mid-East	Region 5 New England	Region 6 Southeast
Delaware	Connecticut	Alabama
District of Columbia	Maine	Arkansas
Maryland	Massachusetts	Florida
New Jersey	New Hampshire	Georgia
New York	Rhode Island	Kentucky
Pennsylvania	Vermont	Louisiana
		Mississippi
		North Carolina
		South Carolina
		Tennessee
		Virginia
		West Virginia

Fig. 2 States included in the regions for Negro "brains"

When the NMSQT was administered, an official at each school was asked to indicate on a separate form the "socioeconomic level of the area served by your school: high, above average, average, below average, or low." Migration trends were investigated in this study in terms of three socioeconomic levels: above average (high plus above average), average, and below average (below average and low combined).

An important point is that the NMSQT is taken by students in their state or region of residence. Except with boarding school students, who often attend school out of state, the NMSQT is virtually always given to students in their state of residence. Proportionally few of the high scorers in this study were attending boarding schools.

ANALYSES

Several investigators (e.g., Shryock, 1964; Linder, 1969) have discussed different methods for measuring population change. In this study, in addition to cross-tabulations of state (or region) of birth by state (or region) in which the NMSQT was taken, other analyses were done on the basis of loyalists, recruits, and defectors. A loyalist was one who took the NMSQT in his state of birth. Based on the place of testing, a recruit was one changed to a state or region that was different from his place of birth. Based on place of birth, a defector was a person who changed from his state or region of birth to a different state or region. The McNemar change test (1955, pp. 56-57) was used to evaluate the net change (recruits - defectors) that occurred for each state or region. Separate analyses were done according to the socioeconomic level (high, average, or low) of the area served by the schools that these "brains" attended.

RESULTS

NONBLACKS

Table 1 presents migration information for the total sample of 51,096 "brains." Separate tables are not shown for males and females because family moves are seldom dictated by the sex of children and because more stable trends can be determined here with the boys and girls combined. Focusing on state or region of birth, Table 1 gives information on the whereabouts of the defecting "brains" at the time of testing. By looking at states and regions at the time of testing it can be seen where their recruits were obtained.

The West and Northeast were the most successful in keeping high scorers that were born in their regions--about 80% were loyalists--while the Mid-Atlantic region lost about one-third of those born in its area. The Southeast was the biggest gainer of those leaving the Mid-Atlantic region. Although the Mid-

Table 1

The Number and Percentage of Nonblack "Brains" who were Born and Tested in the Different States and Regions*

State or Region of Birth	State or Region of Testing												Total Born
	W	IL	NY	PA	OH	NW	SW	Plains	N. Cen.	SE	Mid-Atlan.	NE	
West	3,059	34	62	27	22	144	95	53	38	120	70	72	3,796
	80.6	.9	1.6	.7	.6	3.8	2.5	1.4	1.0	3.2	1.8	1.9	
	64.7	1.0	.8	.8	.8	5.0	3.6	1.1	1.0	2.2	1.6	1.5	
Illinois	152	2,813	67	41	47	68	84	121	204	140	95	64	3,896
	3.9	72.2	1.7	1.1	1.2	1.7	2.2	3.1	5.2	3.6	2.4	1.6	
	3.2	79.2	.9	1.2	1.6	2.4	3.2	2.6	5.1	2.6	2.2	1.4	
New York	174	62	6,809	157	65	55	73	53	63	226	594	539	8,870
	2.0	.7	76.8	1.8	.7	.6	.8	.6	.7	2.5	6.7	6.1	
	3.7	1.7	86.7	4.6	2.3	1.9	2.7	1.1	1.6	4.2	13.7	11.4	
Pennsylvania	80	38	128	2,677	97	22	40	27	46	143	254	88	3,640
	2.2	1.0	3.5	73.5	2.7	.6	1.1	.7	1.3	3.9	7.0	2.4	
	1.7	1.1	1.6	79.1	3.4	.8	1.5	.6	1.2	2.6	5.9	1.9	
Ohio	97	64	49	64	2,213	37	43	39	110	143	72	55	2,986
	3.2	2.1	1.6	2.1	74.1	1.2	1.4	1.3	3.7	4.8	2.4	1.8	
	2.1	1.8	.6	1.9	76.7	1.3	1.6	.8	2.8	2.6	1.7	1.2	
Northwest	279	39	38	19	24	2,044	88	116	34	82	35	41	2,839
	9.8	1.4	1.3	.7	.8	72.0	3.1	4.1	1.2	2.9	1.2	1.4	
	5.9	1.1	.5	.6	.8	71.6	3.3	2.5	.9	1.5	.8	.9	
Southwest	132	30	41	18	22	76	1,753	85	35	150	46	43	2,431
	5.4	1.2	1.7	.7	.9	3.1	72.1	3.5	1.4	6.2	1.9	1.8	
	2.8	.8	.5	.5	.8	2.7	65.8	1.8	.9	2.8	1.1	.9	
Plains	200	145	51	46	61	192	152	3,923	137	171	49	67	5,194
	3.9	2.8	1.0	.9	1.2	3.7	2.9	75.5	2.6	3.3	.9	1.3	
	4.2	4.1	.7	1.4	2.1	6.7	5.7	82.9	3.4	3.2	1.1	1.4	
North Central	159	166	82	40	116	72	89	151	3,128	129	62	59	4,253
	3.7	3.9	1.9	.9	2.7	1.7	2.1	3.6	73.5	3.0	1.5	1.4	
	3.4	4.7	1.0	1.2	4.0	2.5	3.3	3.2	78.7	2.4	1.4	1.3	
Southeast	159	79	108	79	112	74	178	100	101	3,608	197	105	4,900
	3.2	1.6	2.2	1.6	2.3	1.5	3.6	2.0	2.1	73.6	4.0	2.1	
	3.4	2.2	1.4	2.3	3.9	2.6	6.7	2.1	2.5	66.6	4.5	2.2	
Mid-Atlantic	140	49	239	139	62	39	39	41	47	356	2,721	208	4,080
	3.4	1.2	5.9	3.4	1.5	1.0	1.0	1.0	1.2	8.7	66.7	5.1	
	3.0	1.4	3.0	4.1	2.1	1.4	1.5	.9	1.2	6.6	62.8	4.4	
Northeast	100	33	176	79	44	33	32	25	30	150	138	3,371	4,211
	2.4	.8	4.2	1.9	1.0	.8	.8	.6	.7	3.6	3.3	80.1	
	2.1	.9	2.2	2.3	1.5	1.2	1.2	.5	.8	2.8	3.2	71.5	
Total Tested	4,731	3,552	7,850	3,386	2,885	2,856	2,666	4,734	3,973	5,418	4,333	4,712	51,096

* The top percentage in each cell refers to the state or region of birth and should be read across the table; the bottom percentage in each cell refers to the state or region of testing and should be read down the column.

Atlantic region had a high percentage of defection, about 37% of those tested there were recruited elsewhere. Thus considerable turnover occurred. Other trends may be seen by looking carefully at Table 1.

Additional information is given in Table 2 about each area's net gains or losses. Here it can be seen that by far the greatest concentration of nonblack high test scorers is in New York. About 17% of the entire sample was born in this single state. Although holding about three-quarters of its "brains," New York suffered the most severe loss of talent, in terms of numbers, to other regions. A glance at Table 1 indicates, however, that most of the defectors did not move far. Altogether, about 13% of those born in New York moved to the nearby Mid-Atlantic and Northeast regions, probably reflecting the movement away from urban to suburban areas. California and Hawaii, on the other hand, not only had an 81% loyalist figure, but that area was easily the biggest gainer of talent in terms of recruits minus defectors. The Southeast also did well in this giant talent exchange, while the Plains region did not.

Overall, about 25% of these "brains" changed areas of residence between birth and the time of testing. This figure apparently was not significantly affected by boarding school students, since only 1,555 (about 3%) of these high scorers were attending a school of this type. Of this number about half attended boarding schools in the Northeast region, and 276 indicated that they were born in that same region. The second region with the largest number of boarding school students was the Southeast, but it too drew heavily from its own area--about 60% coming from that region.

Table 3 reveals that the rate of movement--almost 30%--was higher for "brains" who attended schools serving areas that were above average socioeconomically than was the overall percentage (25%) who changed states or regions. California again did well as did the Southwest region. The Northeast also did well in obtaining new recruits but in this case the gains were heavily influenced by the addition of boarding school students. New York lost heavily in this migration exchange.

In contrast to the 30% migration figure for students from schools serving above average socioeconomic areas, only 20% of the students from average socioeconomic areas and 17% from below average areas changed states or regions. When Tables 4 and 5 are compared with Table 3, a number of different trends can be observed that are particularly characteristic of the various states and regions. There was a clear migration trend toward the west--California's gains were substantial regardless of the socioeconomic level of the school area; the Southwest

Table 2

Migration of Nonblack "Brains" among the Different States and Regions in Terms of Loyalists, Recruits, and Defectors

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	3,796	7.4	3,059	80.6	1,672	44.0	+ 935	24.6	19.05*	4,731	124.6	9.3
Illinois	3,896	7.6	2,813	72.2	739	19.0	- 344	8.8	8.06*	3,552	91.2	7.0
New York	8,870	17.4	6,809	76.8	1,041	11.7	-1,020	11.5	18.31*	7,850	88.5	15.4
Pennsylvania	3,640	7.1	2,677	73.5	709	19.5	- 254	7.0	6.21*	3,386	93.0	6.6
Ohio	2,986	5.8	2,213	74.1	672	22.5	- 101	3.4	2.66**	2,885	96.6	5.6
Northwest	2,839	5.6	2,044	72.0	812	28.6	+ 17	.6	.42	2,856	100.6	5.6
Southwest	2,431	4.8	1,753	72.1	913	37.6	+ 235	9.7	5.89*	2,666	109.7	5.2
Plains	5,194	10.2	3,923	75.5	811	15.6	- 460	8.9	10.08*	4,734	91.1	9.3
North Central	4,253	8.3	3,128	73.5	845	19.9	- 280	6.6	6.31*	3,973	93.4	7.8
Southwest	4,900	9.6	3,608	73.6	1,810	36.9	+ 518	10.6	9.30*	5,418	110.6	10.6
Mid-Atlantic	4,080	8.0	2,721	66.7	1,612	39.5	+ 253	6.2	4.64*	4,333	106.2	8.5
Northeast	4,211	8.2	3,371	80.1	1,341	31.8	+ 501	11.9	10.73*	4,712	111.9	9.2
Total	51,096		38,119	74.6	12,977	25.4				51,096		

* Significant at the .001 level.

** Significant at the .01 level.

Table 3

Migration of Nonblack "Brains" who Attended Schools Serving Above Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	2,070	7.6	1,606	77.6	910	44.0	+446	21.5	12.03*	2,516	121.5	9.3
Illinois	2,191	8.1	1,537	70.2	477	21.8	-177	8.1	5.26*	2,014	91.9	7.4
New York	5,100	18.8	3,691	72.4	677	13.3	-732	14.4	16.03*	4,368	85.6	16.1
Pennsylvania	1,723	6.3	1,149	66.7	447	25.9	-127	7.4	3.98*	1,596	92.6	5.9
Ohio	1,493	5.5	987	66.1	351	23.5	-155	10.4	5.30*	1,338	89.6	4.9
Northwest	1,369	5.0	907	66.3	433	31.6	- 29	2.1	.99	1,340	97.9	4.9
Southwest	1,362	5.0	992	72.8	586	43.0	+216	15.9	6.99*	1,578	115.9	5.8
Plains	2,492	9.2	1,770	71.0	458	18.4	-264	10.6	7.69*	2,228	89.4	8.2
North Central	2,136	7.9	1,482	69.4	464	21.7	-190	8.9	5.68*	1,946	91.1	7.2
Southeast	2,521	9.3	1,789	71.0	1,127	44.7	+395	15.7	9.16*	2,916	115.7	10.7
Mid-Atlantic	2,510	9.2	1,586	63.2	1,150	45.8	+226	9.0	4.96*	2,736	109.0	10.1
Northeast	2,226	8.2	1,702	76.5	915	41.1	+391	17.6	10.31*	2,617	117.6	9.6
Total	27,193		19,198	70.6	7,995	29.4				27,193		

* Significant at the .001 level.

Table 4

Migration of Nonblack "Brains" who Attended Schools Serving Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	1,108	5.7	889	80.2	512	46.2	+293	26.4	10.84*	1,401	126.4	7.2
Illinois	1,386	7.1	1,048	75.6	219	15.8	-119	8.6	5.04*	1,267	91.4	6.5
New York	2,991	15.3	2,493	83.4	297	9.9	-201	6.7	7.13*	2,790	93.3	14.3
Pennsylvania	1,641	8.4	1,322	80.6	222	13.5	- 97	5.9	4.17*	1,544	94.1	7.9
Ohio	1,266	6.5	1,043	82.4	276	21.8	+ 53	4.2	2.37**	1,319	104.2	6.8
Northwest	1,212	6.2	952	78.5	336	27.7	+ 76	6.3	3.11*	1,288	106.3	6.6
Southwest	894	4.6	639	71.5	278	31.1	+ 23	2.6	1.00	917	102.6	4.7
Plains	2,304	11.8	1,846	80.1	308	13.4	-150	6.5	5.42*	2,154	93.5	11.0
North Central	1,806	9.3	1,418	78.5	334	18.5	- 54	3.0	2.01**	1,752	97.0	9.0
Southeast	1,986	10.2	1,549	78.0	586	29.5	+149	7.5	4.66*	2,135	107.5	10.9
Mid-Atlantic	1,333	6.8	1,005	75.4	396	29.7	+ 68	5.1	2.53**	1,401	105.1	7.2
Northeast	1,590	8.1	1,328	83.5	221	13.9	- 41	2.6	1.87	1,549	97.4	7.9
Total	19,517		15,532	79.6	3,985	20.4				19,517		

* Significant at the .001 level.

** Significant at the .05 level.

Table 5

Migration of Nonblack "Brains" who Attended Schools Serving Below Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	197	8.8	171	86.8	79	40.1	+53	26.9	5.17*	250	126.9	11.1
Illinois	109	4.8	76	69.7	17	15.6	-16	14.7	2.26***	93	85.3	4.1
New York	311	13.8	294	94.5	41	13.2	+24	7.7	3.15**	335	107.7	14.9
Pennsylvania	204	9.1	163	79.9	15	7.4	-26	12.7	3.47*	178	87.3	7.9
Ohio	89	4.0	72	80.9	18	20.2	+ 1	1.1	.17	90	101.1	4.0
Northwest	174	7.7	139	79.9	25	14.4	-10	5.7	1.29	164	94.3	7.3
Southwest	115	5.1	92	80.0	41	35.7	+18	15.7	2.25***	133	115.7	5.9
Plains	304	13.5	255	83.9	37	12.2	-12	3.9	1.29	292	96.1	13.0
North Central	198	8.8	162	81.8	23	11.6	-13	6.6	1.69	185	93.4	8.2
Southeast	269	12.0	216	80.3	62	23.0	+ 9	3.3	.84	278	103.3	12.4
Mid-Atlantic	70	3.1	33	47.1	14	20.0	-23	32.9	3.22**	47	67.1	2.1
Northeast	210	9.3	187	89.0	18	8.6	- 5	2.4	.78	205	97.6	9.1
Total	2,250		1,860	82.7	390	17.3				2,250		

* Significant at the .001 level.

** Significant at the .01 level.

*** Significant at the .05 level.

region made gains largely in affluent areas but gained in areas that were below average socioeconomically as well. These trends appear to be part of a general population trend that has been identified by the U. S. Bureau of the Census (1969). On the other hand, the entire territory from North Dakota southward to Kansas and eastward to Pennsylvania lost a steady flow of top talent regardless of the socioeconomic conditions of the area served by schools--the only exception was in Ohio where heavy losses occurred only among the most affluent families while a slight gain was made in attracting students at the average level. New York also lost heavily at all levels except among students from below average families. While the Northeast did well only in attracting students to its boarding schools, the Mid-Atlantic region gained students in areas that were well off economically, but lost students who were tested in areas judged to be below average economically. The Southeast region registered gains in the above average and average socioeconomic areas. The Northwest region held its own except among students attending schools serving average socioeconomic areas, where some gains were made.

BLACKS

Migration data for the 8,162 sample of high scoring blacks are shown in Table 6. A pronounced trend evident in this table is the departure of academically talented blacks from the Southeast region. The flow of talent from this region largely went north to the Great Lakes and Mid-East regions, although a significant number also went west--most to California. On the other hand, very little eastern movement was noted away from the western region, the loyalty rate holding at 90%. The Great Lakes and Mid-East regions also did well in keeping their highly able blacks. Moreover, not only did the Great Lakes region draw well from the Southeast region, but a substantial number also went to that region from the Plains area. Because of the different NMSQT levels and the differences in regions, black and nonblack comparisons should be made only with considerable caution. It is noteworthy, however, that while the nonblacks departed from the Great Lakes states in significant numbers, the opposite trend was found for blacks.

Table 7 shows that a third of these bright blacks were born in the states included in the Southeast region. But the defectors from this region were many and there were few recruits. Although relatively few "brains" were born in the New England area, the rate of turnover in terms of recruits minus defectors was quite high. However, 42% of the new recruits were students at boarding schools.

Table 6

The Number and Percentage of Negro "Brains" who were Born and Tested in the Different Regions*

Region of Birth	Region of Testing						Total Born
	W	Plains	Great Lakes	Mid-East	New England	SE	
West	776	11	25	29	3	16	860
	90.2	1.3	2.9	3.4	.3	1.9	
	76.2	3.1	1.3	1.2	1.1	.8	
Plains	29	286	31	8	3	10	367
	7.9	77.9	8.4	2.2	.8	2.7	
	2.8	80.3	1.6	.3	1.1	.5	
Great Lakes	54	13	1,539	42	11	42	1,701
	3.2	.8	90.5	2.5	.6	2.5	
	5.3	3.7	77.7	1.7	3.9	2.0	
Mid-East	36	5	51	2,101	36	73	2,302
	1.6	.2	2.2	91.3	1.6	3.2	
	3.5	1.4	2.6	86.1	12.7	3.5	
New England	4	1	4	20	177	6	212
	1.9	.5	1.9	9.4	83.5	2.8	
	.4	.3	.2	.8	62.5	.3	
Southeast	119	40	330	239	53	1,939	2,720
	4.4	1.5	12.1	8.8	1.9	71.3	
	11.7	11.2	16.7	9.8	18.7	93.0	
Total Tested	1,018	356	1,980	2,439	283	2,086	8,162

* The top percentage in each cell refers to the region of birth and should be read across the table; the bottom percentage in each cell refers to the region of testing and should be read down the column.

Table 8 shows that only 17% of these bright blacks attended schools serving areas that were rated above average socioeconomically, the biggest proportion of whom were born in the Mid-East region. About 45% went to schools serving average areas socioeconomically and 31% attended schools that were rated below average (Tables 9 and 10). Socioeconomic data were not available for schools attended by 7% of this black sample. Tables 8, 9, and 10 reveal that the Southeast lost heavily at all socioeconomic levels.

Of those attending schools serving below average socioeconomic areas, 45% were born in the Southeast. The Great Lakes area attracted the biggest proportion of these students who defected and the Mid-East was the second most popular area for defectors at this socioeconomic level. Heavy defection was also found for

Table 7

Migration of Negro "Brains" among the Different Regions in Terms of Loyalists, Recruits, and Defectors

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	860	10.5	776	90.2	242	28.1	+158	18.4	8.75*	1,018	118.4	12.5
Plains	367	4.5	286	77.9	70	19.1	- 11	3.0	.90	356	97.0	4.4
Great Lakes	1,701	20.8	1,539	90.5	441	25.9	+279	16.4	11.36*	1,980	116.4	24.3
Mid-East	2,302	28.2	2,101	91.3	338	14.7	+137	6.0	5.90*	2,439	106.0	29.9
New England	212	2.6	177	83.5	106	50.0	+ 71	33.5	5.98*	283	133.5	3.5
Southeast	2,720	33.3	1,939	71.3	147	5.4	-634	23.3	20.81*	2,086	76.7	25.6
Total	8,162		6,818	83.5	1,344	16.5				8,162		

* Significant at the .001 level.

Table 8

Migration of Negro "Brains" who Attended Schools Serving Above Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	140	10.3	116	82.9	50	35.7	+ 26	18.6	3.02**	166	118.6	12.3
Plains	61	4.5	42	68.9	7	11.5	- 12	19.7	2.35***	49	80.3	3.6
Great Lakes	325	24.0	278	85.5	68	20.9	+ 21	6.5	1.96***	346	106.5	25.5
Mid-East	483	35.6	438	90.7	96	19.9	+ 51	10.6	4.30*	534	110.6	39.4
New England	56	4.1	42	75.0	44	78.6	+ 30	53.6	3.94*	86	153.6	6.3
Southeast	290	21.4	155	53.4	19	6.6	-116	40.0	9.35*	174	60.0	12.8
Total	1,355		1,071	79.0	284	21.0				1,355		

* Significant at the .001 level.

** Significant at the .01 level.

*** Significant at the .05 level.

Table 9

Migration of Negro "Brains" who Attended Schools Serving Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	337	9.1	308	91.4	97	28.8	+ 68	20.2	6.06*	405	120.2	11.0
Plains	181	4.9	148	81.8	39	21.5	+ 6	3.3	.71	187	103.3	5.1
Great Lakes	744	20.2	677	91.0	186	25.0	+119	16.0	7.48*	863	116.0	23.4
Mid-East	1,160	31.4	1,080	93.1	159	13.7	+ 79	6.8	5.11*	1,239	106.8	33.6
New England	110	3.0	95	86.4	28	25.5	+ 13	11.8	1.98***	123	111.8	3.3
Southeast	1,159	31.4	805	69.5	69	6.0	-285	24.6	13.86*	874	75.4	23.7
Total	3,691		3,113	84.3	578	15.7				3,691		

* Significant at the .001 level.

*** Significant at the .05 level.

Table 10

Migration of Negro "Brains" who Attended Schools Serving Below Average Areas Socioeconomically

	Born in Region		Loyalists		Recruits		Net Change (Recruits - Defectors)		Change Test	Total Tested in Region		
	N	% of Total for all Regions	N	% of Total Born in Region	N	% of Total Born in Region	N	% of Total Born in Region	Critical Ratio	N	% of Total Born in Region	% of Total all Regions
West	305	11.9	280	91.8	70	23.0	+ 45	14.8	4.62*	350	114.8	13.7
Plains	110	4.3	91	82.7	23	20.9	+ 4	3.6	.62	114	103.6	4.4
Great Lakes	503	19.6	462	91.8	136	27.0	+ 95	18.9	7.14*	598	118.9	23.3
Mid-East	470	18.3	415	88.3	58	12.3	+ 3	.6	.28	473	100.6	18.5
New England	25	1.0	20	80.0	6	24.0	+ 1	4.0	.30	26	104.0	1.0
Southeast	1,150	44.9	944	82.1	58	5.0	-148	12.9	9.11*	1,002	87.1	39.1
Total	2,563		2,212	86.3	351	13.7				2,563		

* Significant at the .001 level.

Southeast born students to Great Lakes schools in average socioeconomic areas. Besides the New England area, the Mid-East and the West did well in recruiting students to areas rated above average socioeconomically.

Overall, the Plains region held its own in this great turnover of black talent. Some defection occurred but enough recruits were attracted to just about offset the talent loss. By far the biggest proportion of its recruits came from the Southeast.

DISCUSSION

Does an evaluation of top scorers on an academic ability test really provide information about migration trends? Are interstate or interregional brain-gains or brain-drains really involved? An important problem concerns the effects that schools versus home environments have in the development of top-flight academic brains. Of course both play an important part. But if good schools are the key factor in developing "brains," then it is conceivable that some students were identified as such in this study because they migrated to areas with better school systems and that others would have been high scorers had they attended high quality schools. Whether good students would be identified as brains would then be a function of which states or regions they left and which areas they moved to at what stage of their education.

Relevant to this point is the fact that, in contrast to other students, the bright nonblack achiever typically comes from a family of higher socioeconomic status--his parents have more education, the family income is higher, and his father is more likely employed in the professions (Watley, a).

In this study, only 4% of the "brains" attended schools judged to be serving below average socioeconomic areas. It appears then that students who are identified in high school as academic "brains" are typically individuals who have had the advantages of both an academically nourishing home environment and good schools. They attended schools of higher quality regardless of where they lived. Therefore, this study does seem to have provided meaningful migration data for youth functioning at the very highest level of academic brainpower.

Relevant also is the fact that high test scorers on academic ability tests are more frequently found in ethnic groups where high social, educational, economic, and professional attainments are found. Jews, for example, produce more than their share of test-bright children, while Negroes, Mexicans, and American Indians produce less. Nevertheless, like the white "brain," the bright black achiever also tends to come from a family of higher socioeconomic status than

his less test-bright peer (Watley, b). In his study of graduates of predominantly Negro colleges, Fichter (1967) summed the matter up in this way:

> "...the better educated Negro parents have provided certain advantages for their children. They undoubtedly anticipated their children's higher education and saw to it that they took the college preparatory curriculum in high school. In this regard, the upper class Negro students have a high school curriculum proportionately similar to that of the white students. ...The economic, occupational and educational status of Negro parents obviously has a great influence on the academic aspirations and experiences of their children. In contrast, it is remarkable that any of the children of lower class Negro parents ever manage to attend and finish college" (p. 48).

While those scoring highest on academic ability tests typically have been nourished in economically favored homes and schools, the question remains largely unanswered regarding the extent to which a good school can offset an unfavorable home atmosphere academically or vice versa. Undoubtedly some students not identified as academic "brains" in this study would have attained that status if only they had been able to attend higher quality schools, while perhaps others would have attained high scores if their home conditions had been different. But because the "brains" in this study were "advantaged" in terms of both home and school, the conclusion seems justified that the migration trends noted are meaningful.

REFERENCES

Committee on Government Operations. Scientific brain drain from the developing countries. Washington, DC: U. S. Congress, March 28, 1968.

Fichter, J. H. Graduates of predominantly Negro colleges. U. S. Department of Health, Education, and Welfare, PHS Publication No. 1571. Washington, DC: U. S. Government Printing Office, 1967.

Linder, F. E. Methods for measuring population change: A systems analysis summary. U. S. Department of Health, Education, and Welfare, PHS Publication No. 1000. Washington, DC: U. S. Government Printing Office, 1969.

McNemar, Q. Psychological statistics. New York: Wiley & Sons, 1955.

National Academy of Sciences. Doctorate recipients from United States universities, 1958-1966. Washington, DC., 1967.

National Science Foundation. Scientists and engineers from abroad. 1962-64. Washington, DC., 1967.

Nichols, R. C. Where the brains are. NMSC Research Reports, 1969, 5, No. 5.

Shryock, H. S., Jr. Population mobility within the United States. Chicago, IL: Community and Family Study Center, University of Chicago, 1964.

U. S. Bureau of the Census. Statistical abstract of the United States: 1969. (90th ed.) Washington, DC: U. S. Government Printing Office, 1969.

Watley, D. J. Black brainpower: Characteristics of bright black youth. Evanston, IL: NMSC, unpublished manuscript. (a)

Watley, D. J. Bright achievers: Their characteristics and some expected behavior patterns. Youth and Society, in press. (b)

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